

## ABSTRACT

It is possible to detect a reception signal at a high speed. A wave detection device includes: a first signal output unit (16) for outputting a first signal  $s[n]$  which is a sum of a digital input signal subjected to A/D conversion and an output from a feedback signal output section (20); a second signal output unit (18) for outputting a second signal  $s[n-1]$  which is the first signal  $s[n]$  delayed by one sampling timing; and a feedback signal output section (20) for subjecting the second signal  $s[n-1]$  to a predetermined calculation. When  $n = N-1$ , a frequency region conversion section (7) reads out the first signal  $s[N-1]$  and the second signal  $s[N-2]$  from registers (22, 24) and subject them to a predetermined calculation, thereby obtaining the input signal subjected to DFT. Since the wave detection device (6) has simple configuration, it is possible to rapidly detect the reception signal which is an input signal of the wave detection device (6).